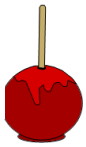
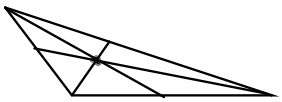
Unit 5 Relationships within Triangles



Oct 30-8:04 AM

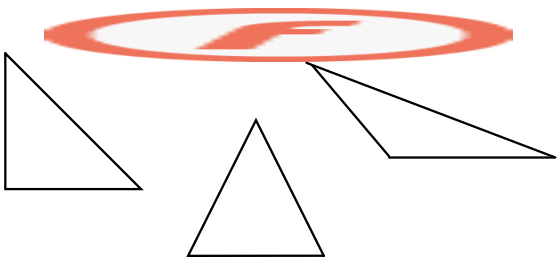
Concurrent Lines- 3 or more lines intersecting at one point

Point of concurrency- point of intersection of concurrent lines



Oct 25-8:32 AM

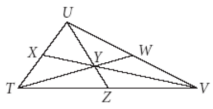
1. Median: segment from a vertex to the midpoint of the opposite side.
   - Every Δ has 3 medians



Oct 31-7:55 AM

1. Segment from the vertex to the centroid is $\frac{2}{3}$ the length of the median

In ΔTUV, Y is the centroid.



11. If $YW = 9$, find TY and TW.

12. If $YU = 9$, find ZY and ZU.

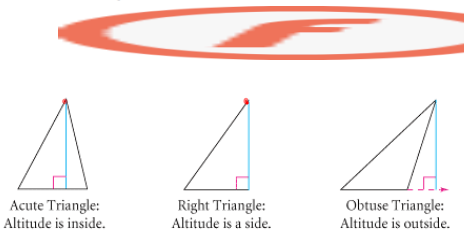
13. If $VX = 9$, find VY and YX.

2. Centroid is called the center of gravity of a triangle.

Nov 9-2:15 PM

2 Altitude: segment from a vertex perpendicular to the opposite side.

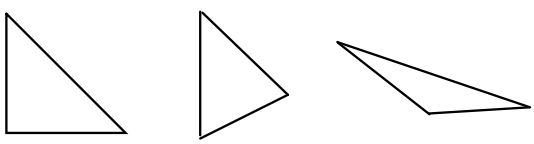
- Every Δ has three altitudes



Oct 31-7:53 AM

3 Angle Bisector: segment from a vertex to the opposite side that bisects the angle.

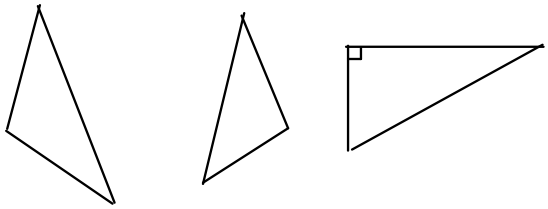
- Every Δ has three angle bisectors



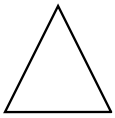
Oct 30-7:49 AM

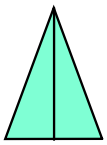
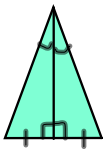
4. Perpendicular Bisector: line or segment that is perpendicular to a side of the Δ and it bisects that side.

- Every Δ has three perpendicular bisectors



Oct 30-7:46 AM

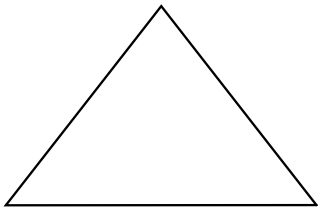


If  then 

In an isosceles triangle, the angle bisector of the vertex angle is the median, the altitude, and the perpendicular bisector.

Oct 10-7:56 AM

Equilateral Triangle: equilateral and equiangular



Oct 30-8:39 PM

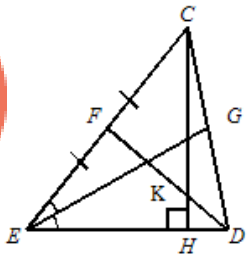
Using ΔCDE, identify the following:

a) MEDIAN of the triangle

b) ALTITUDE of the triangle

c) ANGLE BISECTOR of the triangle

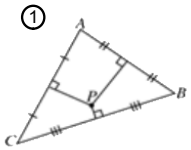
In ΔCDE, if KF=18, then DK= ____?



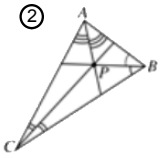
Nov 27-8:03 AM

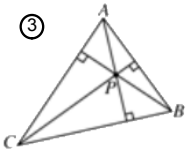
Name the special segments drawn in each triangle

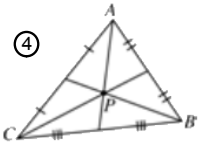
[C]



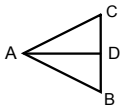
[D]







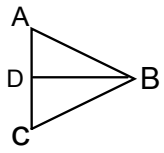
Nov 27-8:04 AM



ΔABC, $\overline{AD}$ is an altitude
m<ADC = 8x-6
DC= x+8
DB=3x-15
Find x and DC

In ΔABC, $\overline{AD}$ is the median
m<ADC = 5x + 22
BD = 10x -3
DC = 5x +17
find x and BD

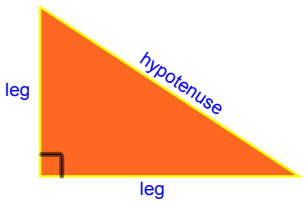
Oct 23-3:01 PM



In △ ABC, $\overline{BD}$ is the angle bisector,
m<ABC = 6x + 20
m<ABD = 8x-15
Find x and m<DBC

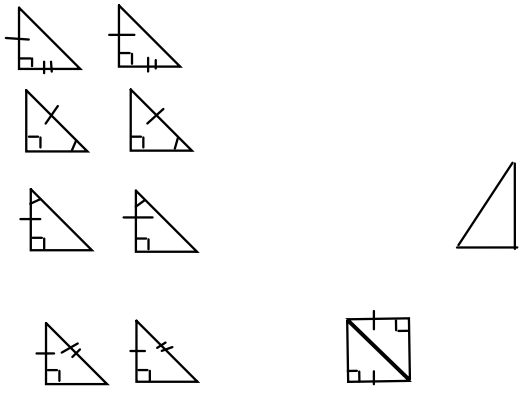
Oct 23-3:07 PM

IV: Right Triangles and Congruence
A. Right Triangle: Δ with 1 right <
1. hypotenuse: side opposite the right <
(longest side)
2. legs: sides of the right <



Oct 10-7:57 AM

Right Triangles



Oct 23-3:30 PM

B. Proving triangles

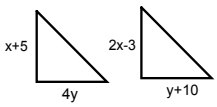
1. Proving any triangles:
   - Given statement
   - 3 ≅ statements
   - △≅△ (SSS, SAS, ASA, AAS)

2. Proving right triangles:
   - Given statement
   - 2 ≅ statements
   - Right △ statement
   - △≅△ (Hypotenuse- leg HL)

Oct 10-7:57 AM

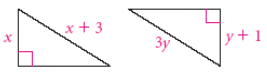
Warm- up

1. solve by LL



What values of x and y are the triangles congruent by HL?

2



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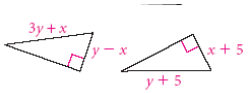
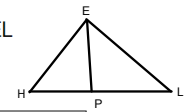


Oct 19-7:52 AM

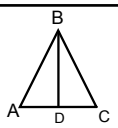
Proof: Given: $\overline{EP}$ is the median of ΔHEL
< H ≅ < L
Prove: < HEP ≅ < LEP



Statements	Reasons

Oct 31-7:55 AM

Given: $\overline{BD}$ is a perpendicular bisector of Δ ABC
Prove : ΔABD = ΔCBD

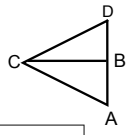


Statements	Reasons

Oct 23-3:10 PM

Given: $\overline{CB}$ is an altitude of ΔACD
B is the midpoint of AD

Prove: ΔABC = ΔDBC

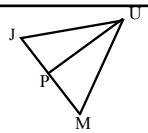


Statements	Reasons

Oct 23-3:19 PM

Warm-up

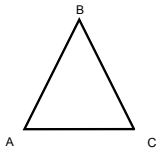
Given: $\overline{UP}$ is $\perp$ bisector of ΔJUM
Prove: $\overline{UP}$ is angle bisector of ΔJUM



Statements	Reasons

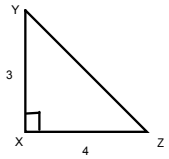
Nov 26-7:28 AM

5.4



m<A = 70
m<B = 50

List the sides in order from smallest to largest.

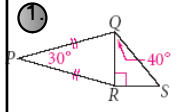


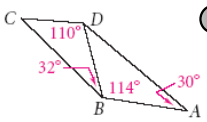
List the angles in order from largest to smallest

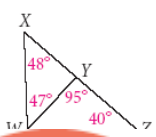
Mar 26-11:08 PM

BELLWORK

Determine which segment is the shortest in each diagram.

1. 

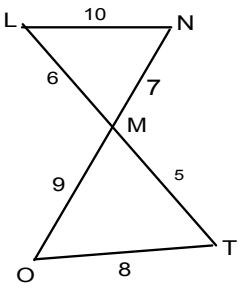
2. 

3. 

CD

XY

Nov 9-8:03 AM



Oct 28-8:23 AM

5.5

Sum of any 2 sides of a triangle is greater than the length of the third side.

Can these measurements form a triangles?

15, 12 and 9

23,16, and 7

2.8, 6.8, 4.5

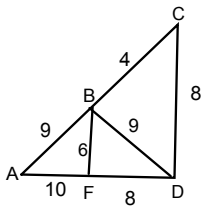
The lengths of two sides of a triangle are given. Describe the lengths possible for the third side

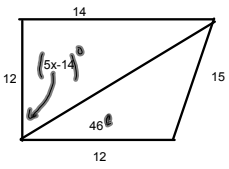
18 m, 23 m

5 in., 16 in.

Nov 19-7:49 AM

5.6 Inequalities between two triangles--Hinge Theorem





Oct 28-8:10 AM

Triangle Inequality Theorem

Bellwork

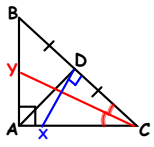
1. The sum of two sides of a triangle must be

_____

Inequalities for sides and angles of a triangle

2. Largest angle is always _____

3. Shortest side is always _____

4. 

$\overline{AD}$ = _____
$\overline{BA}$ = _____
$\overline{DX}$ = _____
$\overline{CY}$ = _____

5. $(x+1)(x-3)$
6. $(2x-1)(x-5)$
7. $(x-5)(x-5)$

Nov 27-8:19 AM